

**WHAT IS CLAIMED IS:**

1. A method of making a multi-piece solid golf ball comprising the steps of:

(a) molding a rubber composition for a center in a spherical shape to form an unvulcanized center,

(b) placing a rubber composition for a core outer layer to a mold having a semi-spherical cavity, and either semi-vulcanizing the rubber composition or heating the rubber composition to such a degree that the rubber composition neither semi-vulcanizes nor shrinks between the semi-spherical cavity and a male plug mold to form a semi-vulcanized or unvulcanized semi-spherical half-shell for the core outer layer,

(c) after removing the male plug mold, mounting the unvulcanized center formed in the step (a) on a concave of the semi-vulcanized or unvulcanized semi-spherical half-shell for the core outer layer, and covering the unvulcanized center with a semi-vulcanized or unvulcanized semi-spherical half-shell for the core outer layer separately formed in the same manner as the step (b) to integrally vulcanize,

(d) optionally, repeating the step (c) to form a core,  
and

(e) covering the core with a cover,

wherein the rubber composition for core outer layer  
does not contain zinc salt of unsaturated carboxylic acid.